FIG. 1

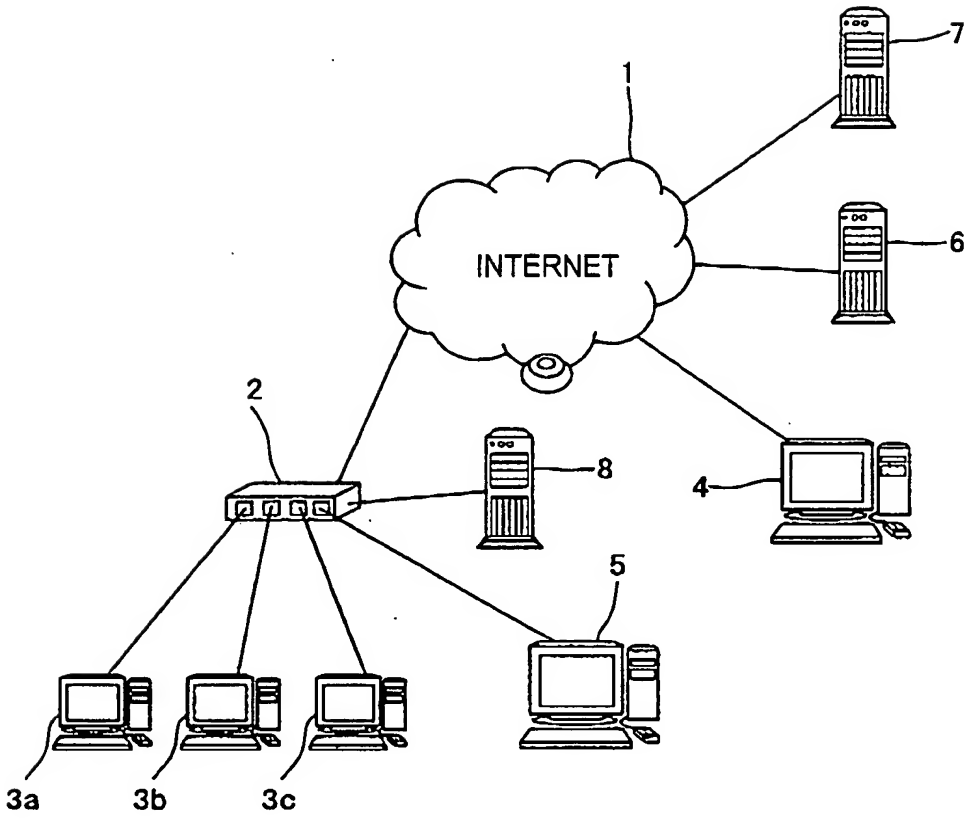


FIG. 2

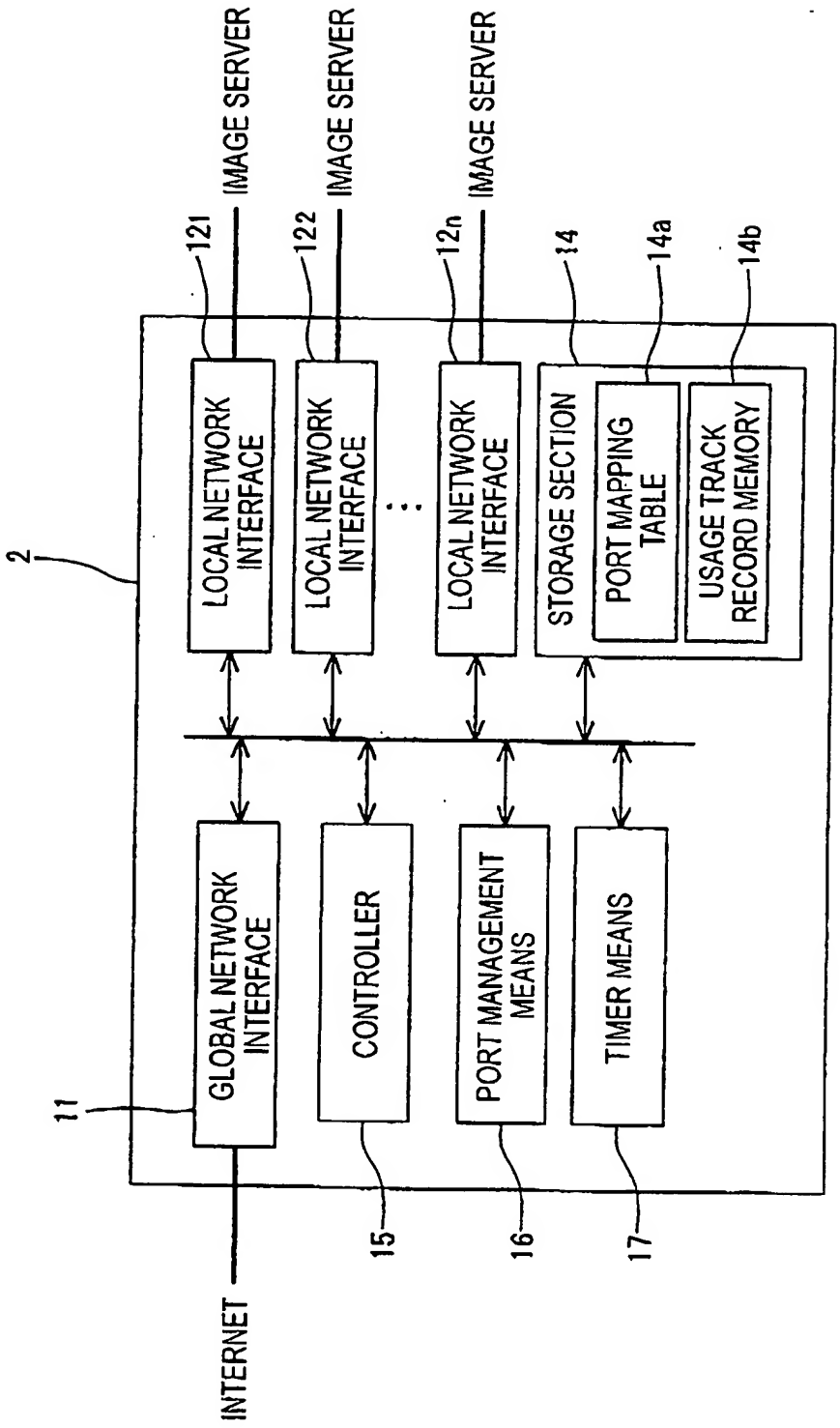

2
IMAGE SERVER
IMAGE SERVER
IMAGE SERVER
121
122
12n
14
14a
14b
LOCAL NETWORK INTERFACE
LOCAL NETWORK INTERFACE
LOCAL NETWORK INTERFACE
STORAGE SECTION
PORT MAPPING TABLE
USAGE TRACK RECORD MEMORY
11
GLOBAL NETWORK INTERFACE
CONTROLLER
PORT MANAGEMENT MEANS
TIMER MEANS
15
16
17
INTERNET

FIG. 3

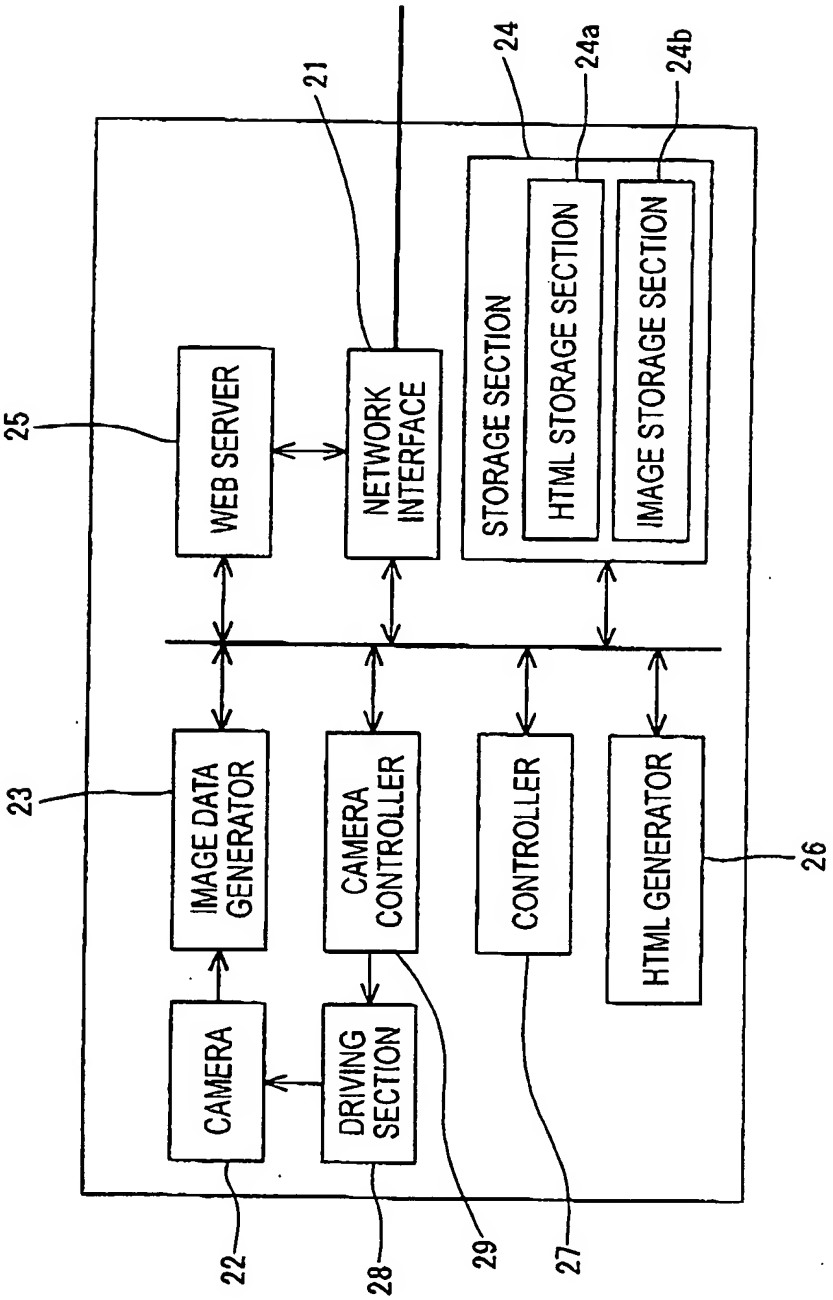

21
24
24a
24b
25
WEB SERVER
NETWORK INTERFACE
STORAGE SECTION
HTML STORAGE SECTION
IMAGE STORAGE SECTION
23
IMAGE DATA GENERATOR
CAMERA CONTROLLER
CONTROLLER
HTML GENERATOR
26
CAMERA
DRIVING SECTION
22
28
29
27

FIG. 4

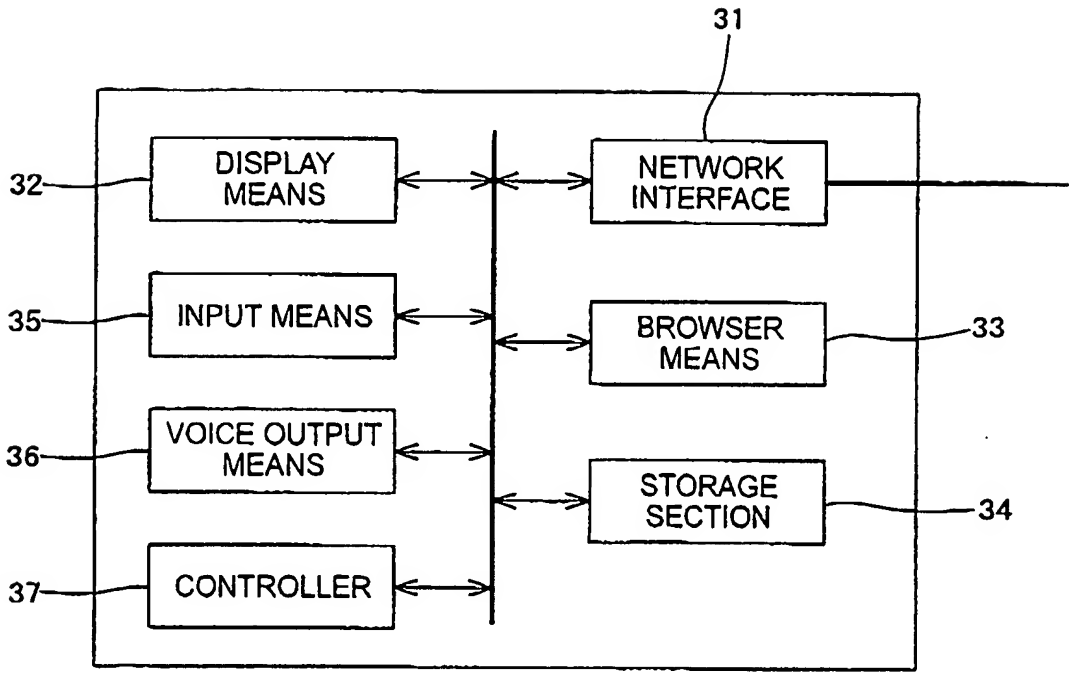

31
32
DISPLAY MEANS
NETWORK INTERFACE
35
INPUT MEANS
BROWSER MEANS
33
36
VOICE OUTPUT MEANS
STORAGE SECTION
34
37
CONTROLLER

FIG. 5

OUTSIDE THE ROUTER		INSIDE THE ROUTER			
EXTERNAL PORT NUMBER	EXTERNAL IP ADDRESS	INTERNAL PORT NUMBER	IP ADDRESS	HOST NAME	PRESET TIME
80	232.0.0.2	8080	192.168.0.1	MACHINE 1	(10 MINUTES)
2000		80	192.168.0.3	MACHINE 2	20 MINUTES
2003		101	192.168.0.3	MACHINE 3	5 MINUTES

FIG. 6

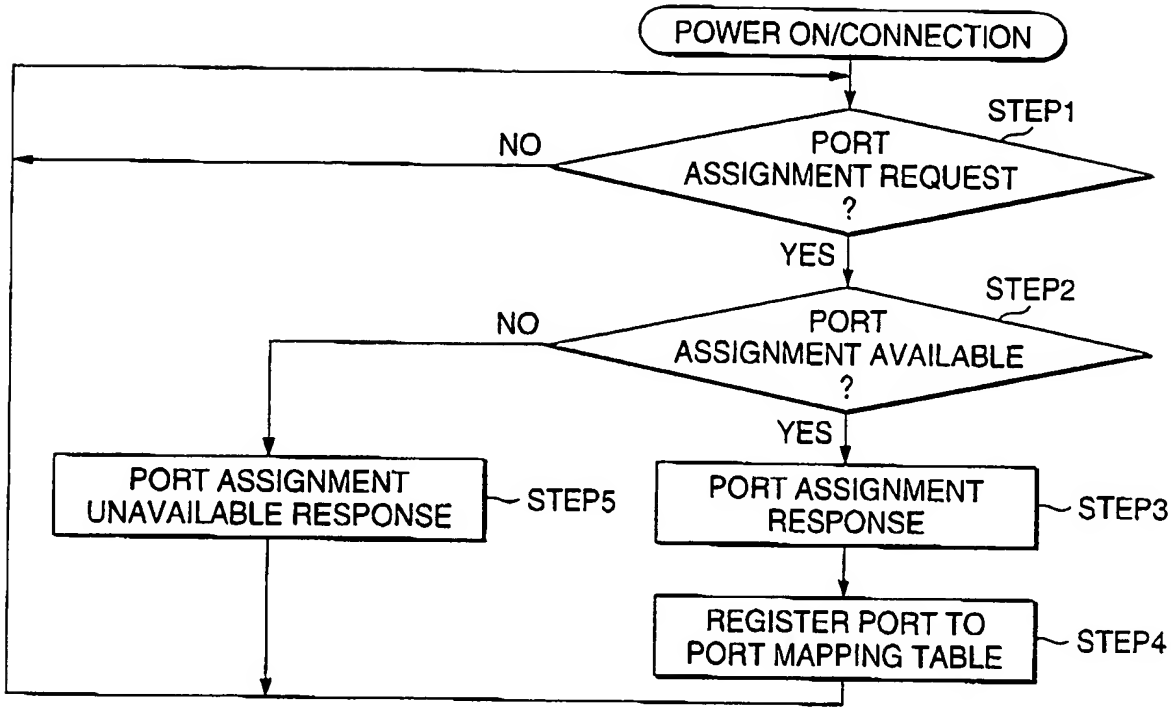

POWER ON/CONNECTION
STEP1
PORT ASSIGNMENT REQUEST ?
NO
YES
STEP2
PORT ASSIGNMENT AVAILABLE ?
NO
YES
PORT ASSIGNMENT UNAVAILABLE RESPONSE
STEP5
PORT ASSIGNMENT RESPONSE
STEP3
REGISTER PORT TO PORT MAPPING TABLE
STEP4

FIG. 7

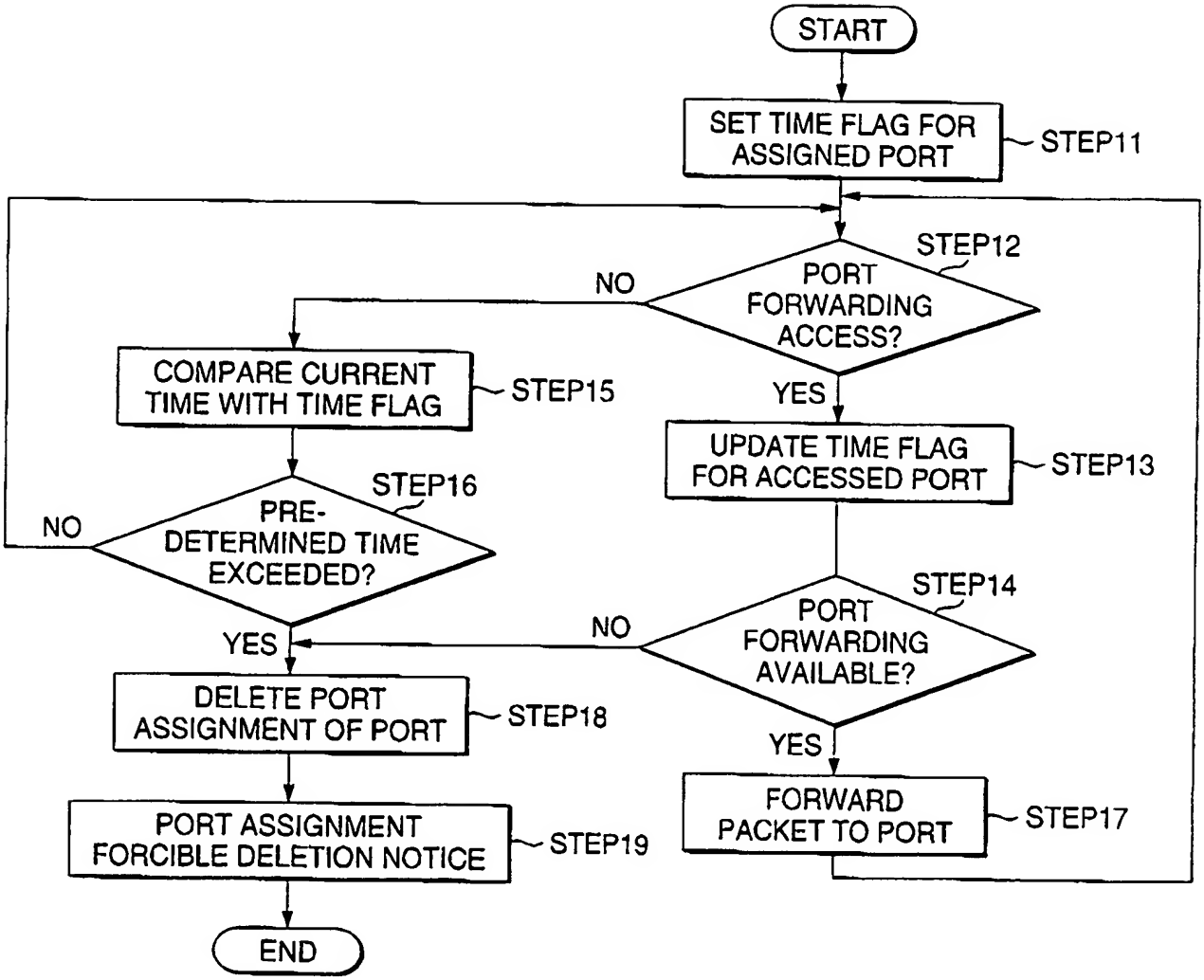

START
SET TIME FLAG FOR ASSIGNED PORT
STEP11
STEP12
PORT FORWARDING ACCESS?
NO
YES
COMPARE CURRENT TIME WITH TIME FLAG
STEP15
UPDATE TIME FLAG FOR ACCESSED PORT
STEP13
STEP16
PRE-DETERMINED TIME EXCEEDED?
NO
STEP14
PORT FORWARDING AVAILABLE?
NO
YES
YES
DELETE PORT ASSIGNMENT OF PORT
STEP18
FORWARD PACKET TO PORT
STEP17
PORT ASSIGNMENT FORCIBLE DELETION NOTICE
STEP19
END

FIG. 8

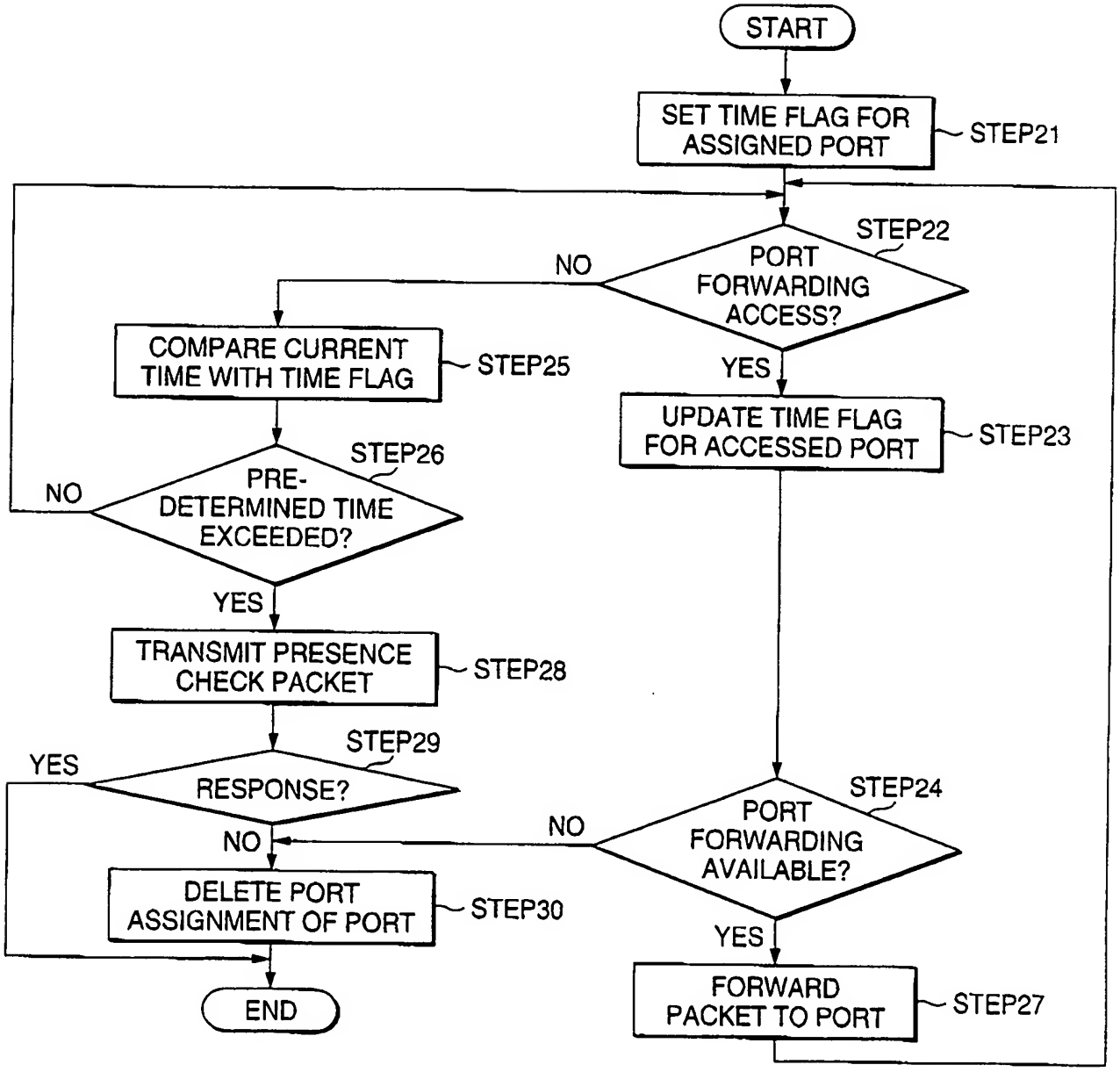

START
SET TIME FLAG FOR ASSIGNED PORT
STEP21
STEP22
PORT FORWARDING ACCESS?
NO
YES
COMPARE CURRENT TIME WITH TIME FLAG
STEP25
UPDATE TIME FLAG FOR ACCESSED PORT
STEP23
STEP26
PRE-DETERMINED TIME EXCEEDED?
NO
YES
TRANSMIT PRESENCE CHECK PACKET
STEP28
STEP29
RESPONSE?
YES
NO
STEP24
PORT FORWARDING AVAILABLE?
NO
YES
DELETE PORT ASSIGNMENT OF PORT
STEP30
FORWARD PACKET TO PORT
STEP27
END

FIG. 9

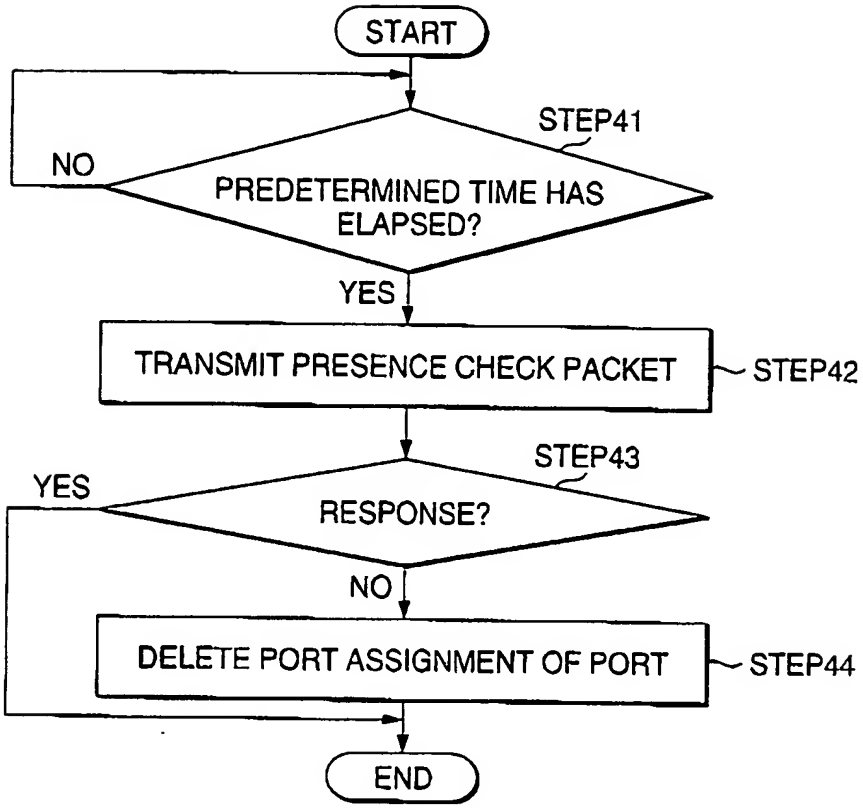

START
STEP41
NO
PREDETERMINED TIME HAS ELAPSED?
YES
TRANSMIT PRESENCE CHECK PACKET
STEP42
STEP43
YES
RESPONSE?
NO
DELETE PORT ASSIGNMENT OF PORT
STEP44
END

FIG. 10

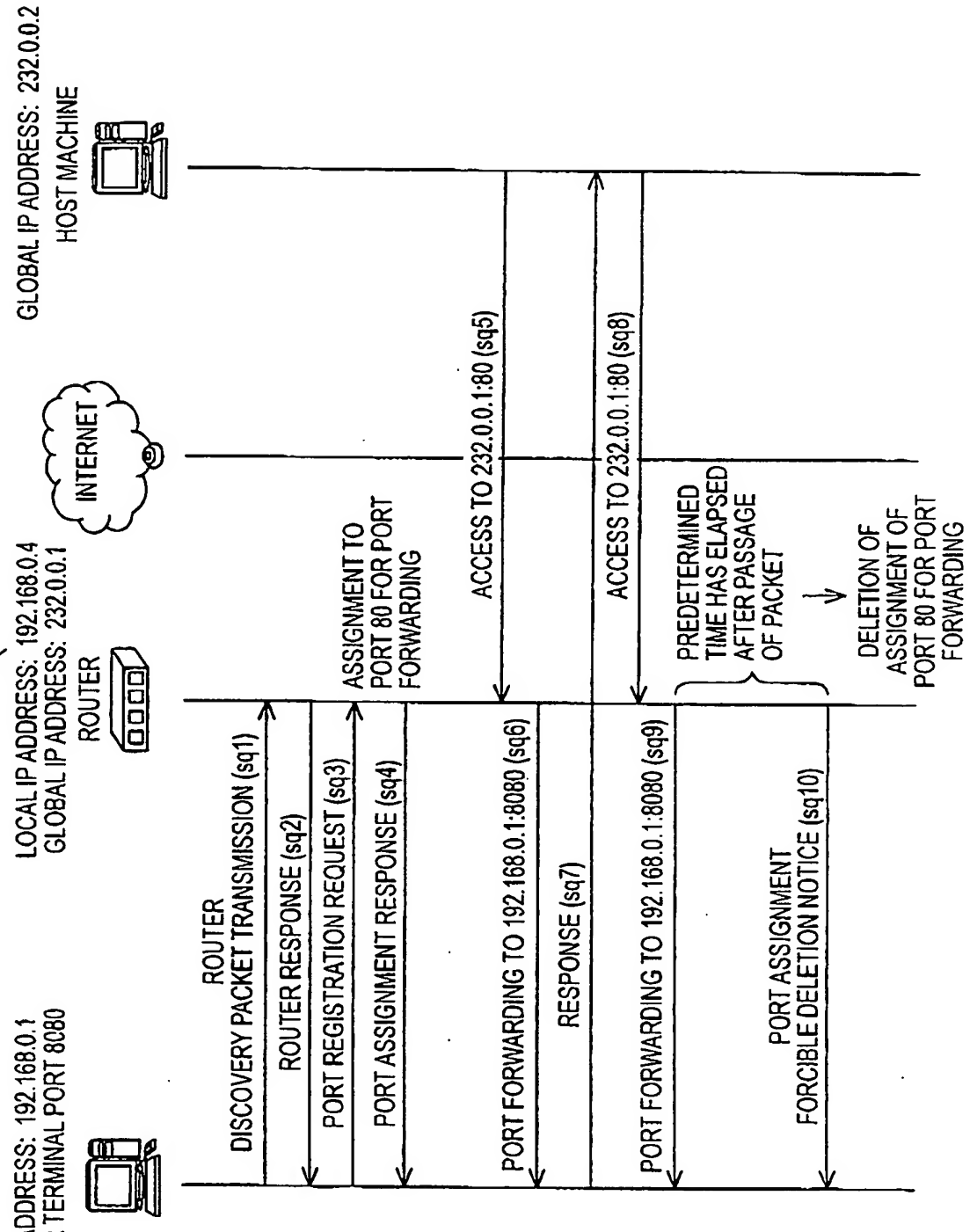

LOCAL NETWORK
LOCAL IP ADDRESS: 192.168.0.1
COMPUTER TERMINAL PORT 8080
LOCAL IP ADDRESS: 192.168.0.4
GLOBAL IP ADDRESS: 232.0.0.1
ROUTER
INTERNET
GLOBAL IP ADDRESS: 232.0.0.2
HOST MACHINE
ROUTER DISCOVERY PACKET TRANSMISSION (sq1)
ROUTER RESPONSE (sq2)
PORT REGISTRATION REQUEST (sq3)
PORT ASSIGNMENT RESPONSE (sq4)
ASSIGNMENT TO PORT 80 FOR PORT FORWARDING
ACCESS TO 232.0.0.1:80 (sq5)
PORT FORWARDING TO 192.168.0.1:8080 (sq6)
RESPONSE (sq7)
ACCESS TO 232.0.0.1:80 (sq8)
PORT FORWARDING TO 192.168.0.1:8080 (sq9)
PREDETERMINED TIME HAS ELAPSED AFTER PASSAGE OF PACKET
PORT ASSIGNMENT FORCIBLE DELETION NOTICE (sq10)
DELETION OF ASSIGNMENT OF PORT 80 FOR PORT FORWARDING

FIG. 11

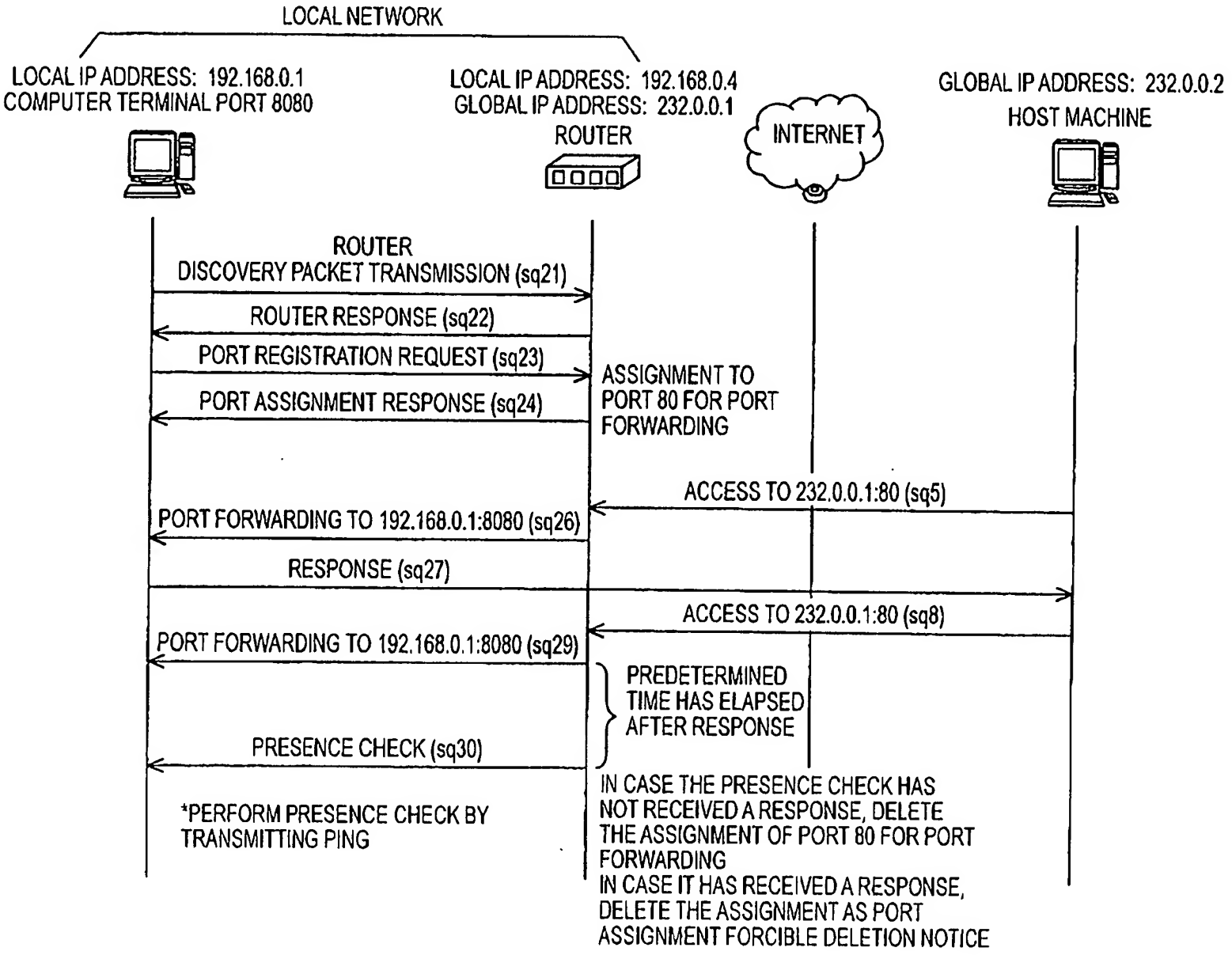
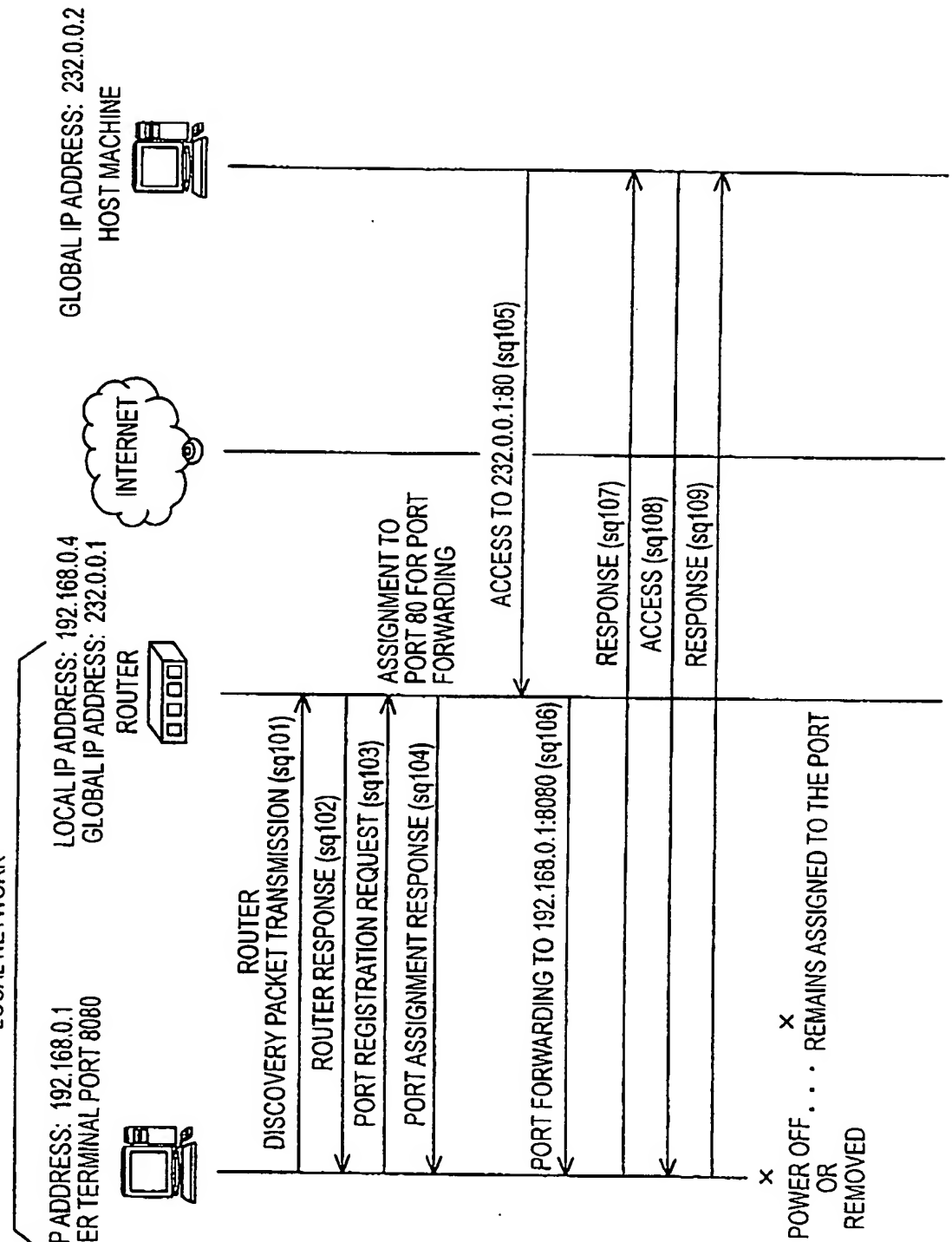

LOCAL NETWORK
LOCAL IP ADDRESS: 192.168.0.1
COMPUTER TERMINAL PORT 8080
LOCAL IP ADDRESS: 192.168.0.4
GLOBAL IP ADDRESS: 232.0.0.1
ROUTER
INTERNET
GLOBAL IP ADDRESS: 232.0.0.2
HOST MACHINE
ROUTER DISCOVERY PACKET TRANSMISSION (sq21)
ROUTER RESPONSE (sq22)
PORT REGISTRATION REQUEST (sq23)
ASSIGNMENT TO PORT 80 FOR PORT FORWARDING
PORT ASSIGNMENT RESPONSE (sq24)
ACCESS TO 232.0.0.1:80 (sq5)
PORT FORWARDING TO 192.168.0.1:8080 (sq26)
RESPONSE (sq27)
ACCESS TO 232.0.0.1:80 (sq8)
PORT FORWARDING TO 192.168.0.1:8080 (sq29)
PREDETERMINED TIME HAS ELAPSED AFTER RESPONSE
PRESENCE CHECK (sq30)
*PERFORM PRESENCE CHECK BY TRANSMITTING PING
IN CASE THE PRESENCE CHECK HAS NOT RECEIVED A RESPONSE, DELETE THE ASSIGNMENT OF PORT 80 FOR PORT FORWARDING
IN CASE IT HAS RECEIVED A RESPONSE, DELETE THE ASSIGNMENT AS PORT ASSIGNMENT FORCIBLE DELETION NOTICE

FIG. 12


LOCAL NETWORK
LOCAL IP ADDRESS: 192.168.0.1
COMPUTER TERMINAL PORT 8080
LOCAL IP ADDRESS: 192.168.0.4
GLOBAL IP ADDRESS: 232.0.0.1
ROUTER
INTERNET
GLOBAL IP ADDRESS: 232.0.0.2
HOST MACHINE
ROUTER DISCOVERY PACKET TRANSMISSION (sq101)
ROUTER RESPONSE (sq102)
PORT REGISTRATION REQUEST (sq103)
PORT ASSIGNMENT RESPONSE (sq104)
ASSIGNMENT TO PORT 80 FOR PORT FORWARDING
ACCESS TO 232.0.0.1:80 (sq105)
PORT FORWARDING TO 192.168.0.1:8080 (sq106)
RESPONSE (sq107)
ACCESS (sq108)
RESPONSE (sq109)
POWER OFF OR REMOVED
REMAINS ASSIGNED TO THE PORT